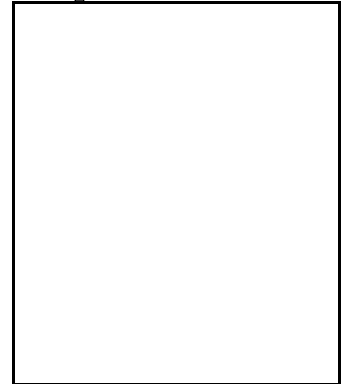

The Integrated Solid Waste Management Chapter is non mandated; it is provided for information and advisory purposes. The recommendations in this chapter to fulfill the chapter's objectives do not create new legal mandates for local governments or other regional governmental organizations.

Chapter 14



INTEGRATED SOLID WASTE MANAGEMENT

- **Introduction**
- **Purpose of the Integrated Solid Waste Component**
- **Existing Goals and Objectives for Solid Waste Management Under State Law**
- **The Planning Process**
- **Subregional Solid Waste Planning**
- **Waste Generation, Disposal, and Capacity in the SCAG Region**
- **Regional Solid Waste Issues**
- **Integration of Solid Waste With Other Regional Issues**

A. INTRODUCTION

The average Southern Californian generates more than eight pounds of garbage each day.¹ This is equivalent to more than 22 million tons per year for the entire region. What to do with this enormous amount of waste—where to dispose of it and how to reduce the amount we produce—is an issue of great importance to Southern Californians and to local governments.

While some of the waste generated in the SCAG region is recycled or reused, most of it is sent to one of several

¹California Integrated Waste Management Board, CIWMB Interim Database Project based on 1990 data.

landfills. The continuing reliance on landfills to dispose of the region's waste presents several problems. Many landfills in the region are running out of capacity while environmental concerns and community opposition make building new landfills or expanding existing landfills increasingly difficult. The "Not-In-My-Backyard" (NIMBY) syndrome, so often referred to in the media, has effectively blocked or stalled the region's expansion of landfills. At the same time, dwindling landfill capacity has forced both the region and the state to make concerted efforts at reducing the amount of waste being produced while increasing the amount that is recycled or reused.

While the lack of landfills creates a short-term crisis and has sparked both media and political attention, the creation of new landfill or other disposal capacity will not necessarily reduce the need to reduce, reuse, and recycle the region's wastes. A growing awareness exists among environmental organizations and the public at-large that the region's history of using and disposing of its natural resources has other environmental implications. Waste sent to landfills represents raw materials that can no longer be used. Waste generated and not recycled or reused increases the region's continuing reliance on the use of virgin materials, such as timber and metals, and continues the environmental effects of producing or extracting these virgin materials.

In 1989, the California Legislature passed Assembly Bill 939, a far-reaching attempt to address the solid waste issue. California Integrated Waste Management Act of 1989 (formerly AB 939) requires local governments to reduce the amount of solid waste generated in their jurisdictions and disposed of in a landfill or other means by 25 percent by 1995 and by 50 percent by the year 2000. Thus, the pressure is on local governments—which have historically had primary responsibility for waste collection and management—to swiftly implement effective programs and policies to divert waste away from landfills. At the same time, such programs can cost significant public resources and affect the region's competitive position. While much of this responsibility has been vested with local governments, it will require concerted effort among all levels of government and the private sector to meet these goals in an economically efficient fashion. This chapter addresses some of the issues associated with meeting these and other solid waste management goals in Southern California.

R. PURPOSE OF THE INTEGRATED SOLID WASTE COMPONENT

California Integrated Waste Management Act requires local governments to prepare comprehensive integrated waste management plans that demonstrate how the 25 and 50 percent reductions will be met. There is no similar requirement to prepare regional plans and this chapter does not attempt to reconstruct the California Integrated Waste Management Act plans on a regional level. Instead, this chapter has more modest goals intended to initiate a regional dialogue on solid waste issues.

To that end, this chapter's purpose is to:

- Describe the integrated solid waste management planning process in Southern California.
- Describe issues associated with current and future waste generation and solid waste landfill capacity in the region.
- Identify potential regional strategies and actions for improving the region's solid waste management system.
- Integrate the issue of solid waste with other regional issues.

This chapter does not provide a comprehensive analysis or plan for managing the region's solid waste. Such an effort was beyond the scope and resources available. The chapter does, however, identify areas where additional

regional analysis and cooperation may be beneficial and provides a first step toward these efforts. Additionally, the recommendations in this chapter do not create new legal mandates for local governments or other regional governmental agencies.

C. EXISTING GOALS AND OBJECTIVES FOR SOLID WASTE MANAGEMENT UNDER EXISTING STATE LAW

The existing solid waste goals for the SCAG region are articulated in the state law (Cal. Pub. Res. Code, § 40000 et seq.) that governs solid waste management. These goals form the basis for solid waste planning at the city and county level and can be summarized as follows:

- Promote the following waste management practices in order of priority:
 1. Waste Prevention.
 2. Recycling and Composting.
 3. Safe Disposal or Transformation.²
- Minimize unnecessary duplication of effort in solid waste programs carried out by local governments.³

The regional objectives for solid waste are also identified in the state solid waste law and include the following:

- Divert at least 25 percent of all waste from landfills by the year 1995 and divert at least 50 percent by the year 2000.⁴
- Ensure that there is adequate, environmentally safe disposal capacity for the remaining wastes.

These goals and objectives provide the basis for developing policies and programs at the local level and for undertaking regional cooperative efforts to more efficiently and effectively reduce, recycle, and manage solid waste. It should be noted that some local jurisdictions, such as the City of Los Angeles, have adopted more ambitious goals for waste diversion than those articulated in the state law.

D. THE PLANNING PROCESS

One of the fundamental objectives of SCAG's Regional Comprehensive Plan and Guide is to describe in one document the various planning obligations imposed on local governments. In the area of solid waste, the planning requirements under California Integrated Waste Management Act constitute a significant and comprehensive

²Cal. Pub. Res. Code, §40051(a).

³Cal. Pub. Res. Code, §40001(b).

⁴Cal. Pub. Res. Code, §41780.

effort to plan for future solid waste needs. This section provides a brief overview of the California Integrated Waste Management Act planning process.

California Integrated Waste Management Act dramatically changed the approach to solid waste management in California, as well as the process for solid waste planning at the local level. It is this law, and subsequent amendments, that establishes the framework for solid waste planning and solid waste management in the State. Perhaps the most important aspect of California Integrated Waste Management Act is a shift in state and local policy from solid waste disposal to "integrated waste management." The integrated waste management approach creates new priorities for addressing the waste issue and shifts the emphasis away from land disposal.

Thus, the law's intent is to create programs and policies at the local level that promote the reduction in waste generation first, the beneficial reuse of waste through recycling and composting second, and lastly the disposal of waste in either landfills or waste-to-energy facilities. To make these theoretical priorities a reality, the law sets ambitious legal goals for local governments to meet in reducing the amount of solid waste sent to disposal facilities (e.g., landfills, waste-to-energy facilities). By 1995, each city and every unincorporated county area must divert 25 percent of all solid waste away from disposal facilities. By the year 2000, 50 percent must be diverted.

California Integrated Waste Management Act also established a significant solid waste planning process at the city and county level. To demonstrate how the diversion targets will be met, each county and city is required to develop detailed plans outlining the jurisdiction's current or planned policies and programs for promoting source reduction, recycling, composting and other activities and how these activities will result in 25 and 50 percent reductions in solid waste disposal.

1. PLANNING ELEMENTS UNDER CALIFORNIA INTEGRATED WASTE MANAGEMENT ACT

Prior to initiation of the planning process, each county must first form a Local Task Force (LTF). The composition of this task force is determined by the board of supervisors and a majority of the cities within the county and will usually contain members from the solid waste industry, environmental groups, the public, and government agencies. The purpose of the LTF is to identify countywide and regional concerns, determine the needs for new facilities, develop goals and policies, and provide for regional coordination. In addition the LTF has responsibility for reviewing the various plan elements developed by each of the cities in the county. California Integrated Waste Management Act requires cities and counties to prepare four major planning documents or elements.⁵ Eventually, all of the elements prepared by each of the cities within a county, and the elements prepared by the county, are combined into one document, referred to as a Countywide Integrated Waste Management Plan (*see* Figure 14-1). These elements include the following:

- A Source Reduction and Recycling Element (SRRE), which is prepared by each city for its jurisdiction and by the county for unincorporated areas. The SRRE is essentially the jurisdiction's plan for meeting the diversion goals. Thus, the plan requires a detailed inventory of current waste generation and diversion and then an identification of the specific policies and procedures for increasing the current diversion rate

⁵The procedures for preparing the various elements of an Integrated Waste Management Plan are included in Division 30, Part 2 of the California Public Resources Code and in Title 14, Chapter 9 of the California Code of Regulations.

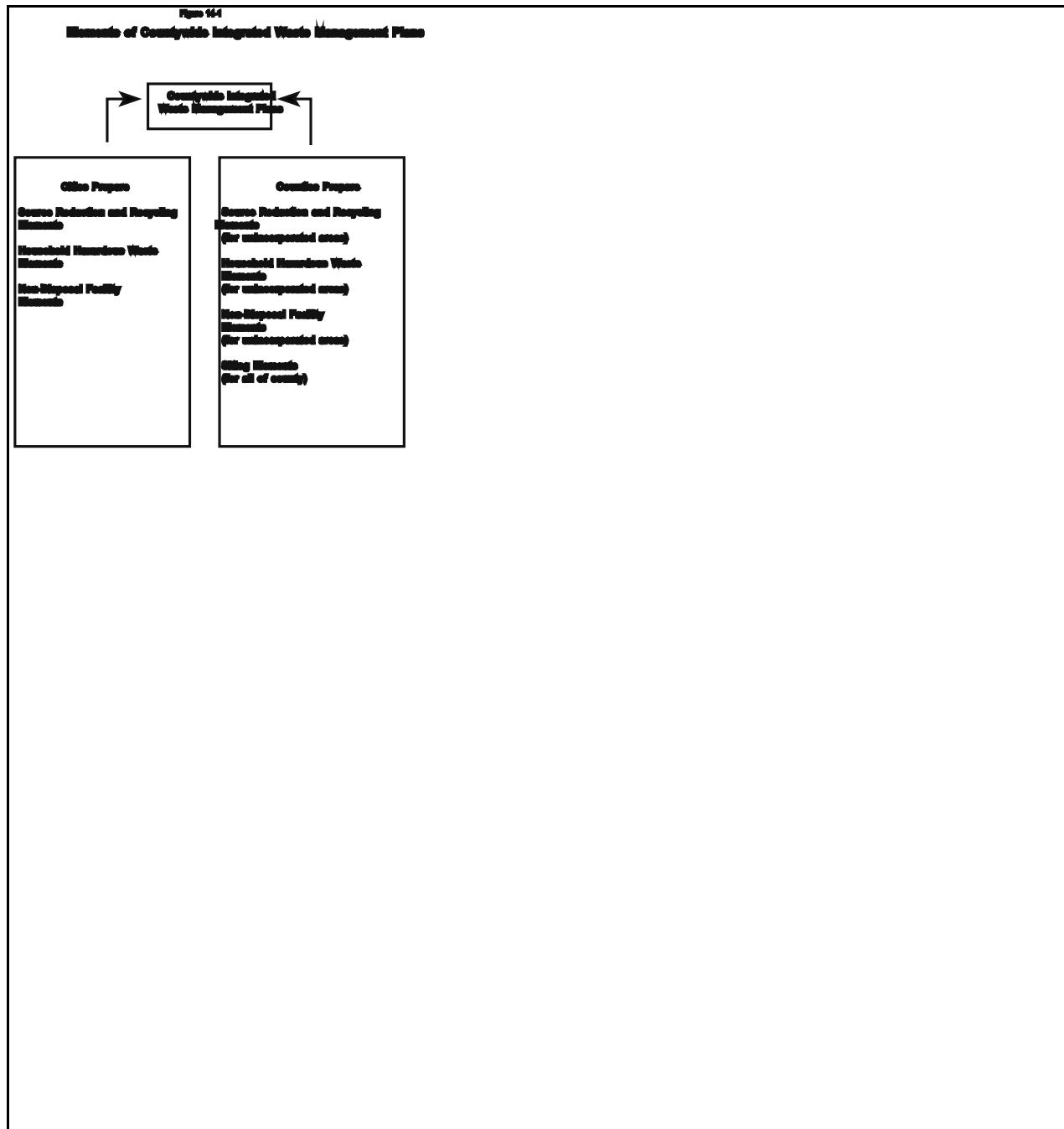
to 25 percent by 1995 and by 50 percent by the year 2000. The city and county SRREs were to be prepared by July 1, 1992. Almost all of the jurisdictions in the SCAG region have prepared a draft SRRE. Each SRRE must include the following: a Waste Characterization Study; a Source Reduction Component; a Recycling Component; a Composting Component; a Special Waste Component; an Education and Public Information Component; a Funding Component; and a Facility Capacity Component. The SRREs are reviewed by the California Integrated Waste Management Board (Board) on a biennial basis to determine their implementation.

· A Household Hazardous Waste Element (HHWE), which is prepared by each city for its jurisdiction and by the county for unincorporated areas. Counties and cities must also prepare a separate element addressing household hazardous waste. In the original California Integrated Waste Management Act legislation, household hazardous waste was included as one component in the SRRE. Subsequent legislation required local governments to develop a separate element for household hazardous waste, although the law requires the element to be submitted at the same time as the SRRE. The HHWEs are reviewed by the California Integrated Waste Management Board (Board) on a biennial basis to determine their implementation.

Household hazardous wastes include a host of commonly used consumer products, including many paints, aerosols, home pesticides, batteries, and used motor oil. In the past, these products have been found to contribute significantly to the contamination of water and soils in and around landfills.

In the household hazardous waste element, each jurisdiction must identify the types and quantities of these wastes that are source reduced, collected, recycled, treated, and disposed of through existing programs. The state has established categories for household hazardous waste types that must be used in identifying these wastes.

Each jurisdiction must also identify various program alternatives for reducing the amount of household hazardous wastes being disposed of. The regulations require that local governments evaluate such options as providing collection services for household hazardous wastes, establishing monitoring programs at disposal sites to reduce the amount of household hazardous wastes being disposed, implementing recycling programs, and initiating public information campaigns. Each element must include an identification of the selected program alternatives for addressing household



hazardous waste, as well as information on program implementation and program monitoring and evaluation.

- A Siting Element, which is prepared by the county. The siting element must provide a description of the areas in the County to be used for the development of adequate disposal or transformation capacity. The development of additional capacity must be shown to be consistent with the city source reduction and recycling elements within the county as well as the county source reduction and recycling element.

The countywide siting element must contain estimates of total waste that will need to be disposed over a 15 year period as well as the remaining disposal capacity throughout the county. If these estimates reveal that current capacity will be exhausted within 15 years, the law requires cities and counties to identify areas for the location of new facilities or expansions of existing facilities. Any such areas identified must be consistent with applicable county or city general plans. If counties are unable to identify areas for new disposal capacity that are consistent with the general plan requirements of the cities and counties, then the siting element must contain a specific strategy for the purpose of securing the necessary additional landfill capacity.

- A Non-disposal Facility Element (NDFE), which is prepared by the city and the county. In 1992, the state legislature amended the solid waste laws and required local governments to develop an additional element called a "non-disposal facility" element. The intent of the non-disposal facility element is to provide a separate and distinct plan for the development of the various facilities necessary to meet the recycling goals specified in each jurisdiction's source reduction and recycling element. Thus, non-disposal facilities include material recovery facilities and other waste recycling and reuse facilities. The NDFEs are submitted to the California Integrated Waste Management Board (Board) for their biennial review to determine implementation.

Each county is required to compile each of the elements developed by the county and the cities in the county into a Countywide Integrated Waste Management Plan (CIWMP). The CIWMP contains the following: all city source reduction and recycling elements; the county source reduction and recycling element; the city household hazardous waste elements; the county household hazardous waste element; the countywide siting element; the city non-disposal facility element; and the county non-disposal facility element. The CIWMP provides the comprehensive plan for each county to meet the goals under the state law.

E SUBREGIONAL SOLID WASTE PLANNING

In addition to city and county solid waste planning required under California Integrated Waste Management Act, various subregions within the SCAG region have also developed solid waste plans. The Coachella Valley Association of Governments, for example, was the lead agency in preparing the California Integrated Waste Management Act plans for its member agencies. By combining efforts, resources were conserved in the subregion and overlaps in policies and programs were reduced.

For this Plan, two subregions specifically addressed solid waste issues in their subregional plans. Many other subregions contributed comments on solid waste aspects in the Plan. The subregions addressing solid waste issues in their subregional plans include the Western Riverside Council of Governments and the San Gabriel

Valley Association of Cities.⁶ These subregional plans are summarized below and are included in an appendix to the Plan.

Western Riverside Council of Governments. As part of its draft subregional plan, the Western Riverside Council of Governments (WRCOG) prepared a separate Solid Waste Subregional Element.⁷ This element establishes a Western Riverside County cooperative plan of action for integrated solid waste management. It is intended to provide information and alternatives to members of Western Riverside Council of Governments regarding a joint effort to implement state-mandated diversion goals. The overall goal of the element is to do the following:

- Provide for an integrated system that will meet the projected population growth needs for solid waste reduction, collection, recycling, processing, and disposal.

The element establishes 19 additional goals and objectives for meeting the overall goal and implementation actions for meeting these goals and objectives. These goals and objectives establish a comprehensive program for WRCOG to assist its member agencies in meeting their own solid waste program goals and objectives under California Integrated Waste Management Act.

San Gabriel Valley Association of Cities. As part of its subregional plan, the San Gabriel Valley Association of Cities prepared a Solid Waste Management Report.⁸ This report assesses the current status of waste diversion, waste capacity, and waste management costs in the San Gabriel Valley. The report also evaluates future waste diversion and capacity in the Valley. The potential for landfill expansion and waste-by-rail is evaluated in a series of potential "disposal capacity scenarios." These scenarios are based on different assumptions as to the future capacity of regional landfills. The report also evaluates future waste management costs in the subregion.

E WASTE GENERATION, DISPOSAL, AND CAPACITY IN THE SCAG REGION

This section examines information on the amount of waste generated in the region, the amount recycled and reused, and the amount of waste disposed of in landfills. In addition, current information on the available capacity of landfills in the region is presented. Several sources of data exist on waste generation, diversion, and capacity. For the purposes of this chapter, information from the waste generation studies conducted by cities and counties for their Source Reduction and Recycling Element on 1990 waste generation was used. This information was submitted to the California Integrated Waste Management Board and included in a CIWMB Interim Database Project.

It should be recognized that changes may have occurred to these waste generation numbers since 1990. In particular, as jurisdictions have begun implementation of their SRREs, diversion rates can be expected to increase. Nonetheless these numbers are the best available, consistent regional information and provide a valuable assessment of the composition of the waste stream and the areas in which diversion appears to be working most effectively and where it is proving most difficult.

⁶In addition, the South Bay Cities Association will include a section on integrated solid waste in its final input to the RCP.

⁷See Western Riverside Council of Governments, Western Riverside County Subregional Comprehensive Plan, Draft Discussion Document, September 10, 1993.

⁸Appendix A of the San Gabriel Valley Subregional Plan, prepared for the San Gabriel Valley Association of Cities by Earth Technology Corporation, August 25, 1993.

1. WASTE GENERATION IN THE SCAG REGION

A total of 22 million tons of solid waste was generated in the SCAG region in 1990. This is equivalent to over eight pounds of waste per day per Southern Californian. The SCAG region was responsible for approximately half of all the waste in California. Figure 14-2 shows the total amount of waste disposal in the region broken down by each of the six counties. Los Angeles County accounted for more than half of all the waste generated in the region (12.4 million tons) followed by Orange County (4.4 million tons), Riverside County (2 million tons), San Bernardino County (1.6 million tons), Ventura County (1.1 million tons) and Imperial County (475,935 tons).

Figure 14-3 shows the types of waste generated in California. Paper-- including cardboard, mixed paper, newspaper, and other types--constitutes the largest portion of the waste stream (33 percent). Other types of organic wastes, including food wastes, tires, wood wastes, and crop residuals makes up 25 percent of the waste stream. Other major waste types include yard wastes (14 percent), plastics (6 percent), metals (5 percent), and glass (5 percent). An additional category, "other wastes" which includes among other items inert solids, constituted 12 percent. These percentages are roughly similar to the composition of the waste stream for the entire state.

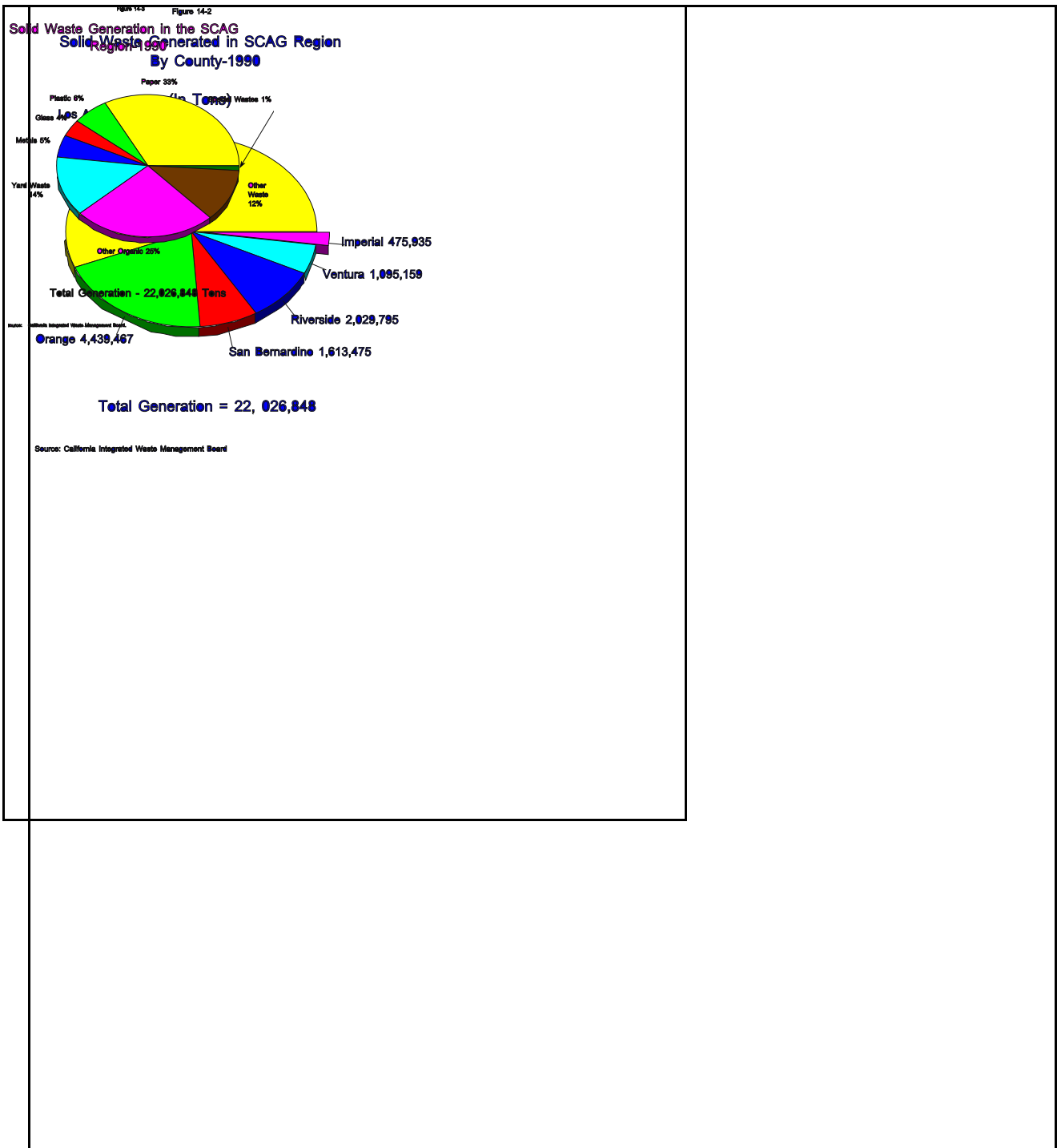
2. WASTE DISPOSAL AND DIVERSION IN THE SCAG REGION

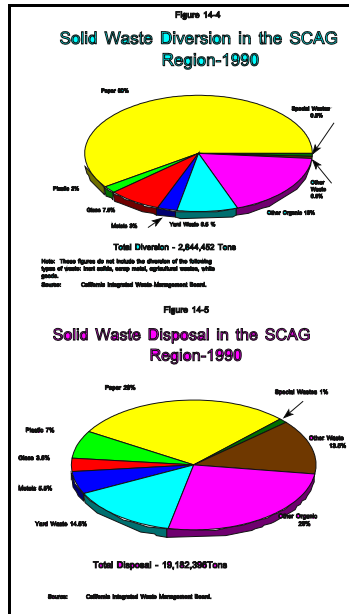
As reported in city and county SRREs, a total of 2,844,452 tons of waste was diverted away from landfills or other disposal facilities and recycled, composted, or reused in some other fashion in 1990. This is approximately 12 percent of the total waste generated. This figure does not include the diversion of certain waste types, including manure, crop residues, and white goods (e.g., air conditioners, refrigerators).

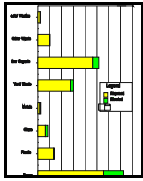
By far the largest percentage of the waste currently being diverted is paper (*see* Figures 14-4, 14-5, and 14-6). Sixty percent of the diverted waste is paper, followed by other organic wastes (18 percent), yard wastes (8.5 percent), and glass (7.5 percent). Other categories of waste each constitute less than five percent of the diverted waste. Again, it should be noted that as jurisdictions have begun to implement integrated waste management programs under state law, the amount of diversion in the region should be expected to increase. As it becomes available, more recent data on the region's progress in waste diversion, and the types of waste that are being diverted, will be collected and disseminated through the RCPG process.

3. LANDFILL CAPACITY IN THE SCAG REGION

A crucial issue facing parts of the SCAG region is whether adequate capacity exists to manage the region's solid waste. It was the widespread perception that California was running out of landfill space that led to the passage of California Integrated Waste Management Act. In addition, many jurisdictions have been unable to site new landfills or expand existing ones due to fierce community opposition and protracted permitting







processes. This diminishing capacity is exacerbated by a growing population that produces more waste than in the past.

Estimating the remaining capacity of landfills is very difficult due to several factors, including the following:

- Accurately assessing the import and export of wastes across county boundaries.
- Assessing changes in future waste generation and diversion.
- Potential expansions to existing landfill capacity.
- Locally imposed restrictions that may modify the actual capacity of a landfill.

This chapter does not include a new evaluation of landfill capacity in the region. Counties were required under Section 18777 of the California Code of Regulations, pursuant to California Integrated Waste Management Act, to submit data on landfill capacity to CIWMB. CIWMB summarized these data in an April 1992 report. Information on capacity presented here is taken from that report. The methodology used by each jurisdiction varied according to local conditions. As counties begin preparing siting elements, additional assessments of capacity, as well as county, subregional, and regional plans for ensuring adequate future capacity, will be prepared.

Landfill capacity can be described in one of two ways. It can be expressed in terms of the total amount of waste authorized to be disposed of in landfills as indicated by landfill permits. Or it can be expressed in terms of the number of years remaining before this available permitted capacity is used up.

As reported by the county local task forces, the SCAG region had a total of 339.2 million tons or 579.9 million cubic yards of permitted landfill capacity in 1990. Figure 14-7 shows how this landfill capacity is allocated among the counties in the region. Orange County has the most available capacity (122.5 million tons), followed by the counties of Los Angeles (100 million tons), Riverside (74.8 million tons), San Bernardino (23.4 million tons), Ventura (14 million tons) and Imperial (4.5 million tons).

The most straightforward approach to estimating the number of years of remaining landfill capacity is to divide the total available capacity in a region or county by the total amount of waste disposed of each year in the region or county. For several reasons, however, this approach may not accurately reflect actual remaining landfill capacity. Waste disposal can not be expected to remain constant over time due to growth or the initiation of new source reduction and recycling programs. Therefore, current waste disposal information can not always be used to project future waste disposal needs. In addition, a jurisdiction's permitted capacity may not be an entirely accurate reflection of the amount of landfill space that can be used in the future. For example, some jurisdiction's have locally imposed restrictions on landfills that do not allow a landfill to reach its permitted capacity. For the data presented here, each county's local task force used its own methodology to estimate the number of years of remaining capacity. Therefore, the estimates reflect the local conditions in each county.

Los Angeles County reports the most serious shortfall in landfill capacity. The County estimates that remaining capacity will be exhausted in five years or less (*see* Figure 14-8). San Bernardino and Ventura

counties both estimate more than five but less than 15 years of remaining capacity. Orange County, Riverside County, and Imperial County all have more than 15 years capacity. Again, these estimates are essentially snapshots of 1990 capacity conducted individually by each county. Such capacity estimates are changing rapidly with closures and approved expansions of facilities and intercounty agreements to share landfill capacity.

4 PLANNED DEVELOPMENT OF NEW LANDFILL CAPACITY

In response to the potential shortfall in future landfill capacity in parts of the region, several proposals for new landfills or expanded landfills are being offered. The most regionally significant of the proposals are those that propose to site very large landfills in remote desert areas and use rail lines to transport waste from urban areas to the desert sites. The proposals, known as "waste-by-rail" facilities, were identified as a feasible waste disposal alternative in a 1988 report prepared by SCAG at the request of the San Gabriel Valley Association of Cities.⁹ Since then, several proposals have been offered to site and build landfills in various desert sites and to develop the necessary material recovery facilities, transfer stations, and rail lines to serve these landfills.

The proposed waste-by-rail initiatives currently include the Eagle Mountain project in Riverside County, the Rail-Cycle project in San Bernardino County, the InteRail and Chamber Development projects in Imperial County, the Campo project on the Campo Indian Reservation within San Diego County, and the East Carbon Project in East Carbon, Utah. Figure 14-9 shows the proposed location and rail right-of-way for each of these projects.

a. Eagle Mountain Project

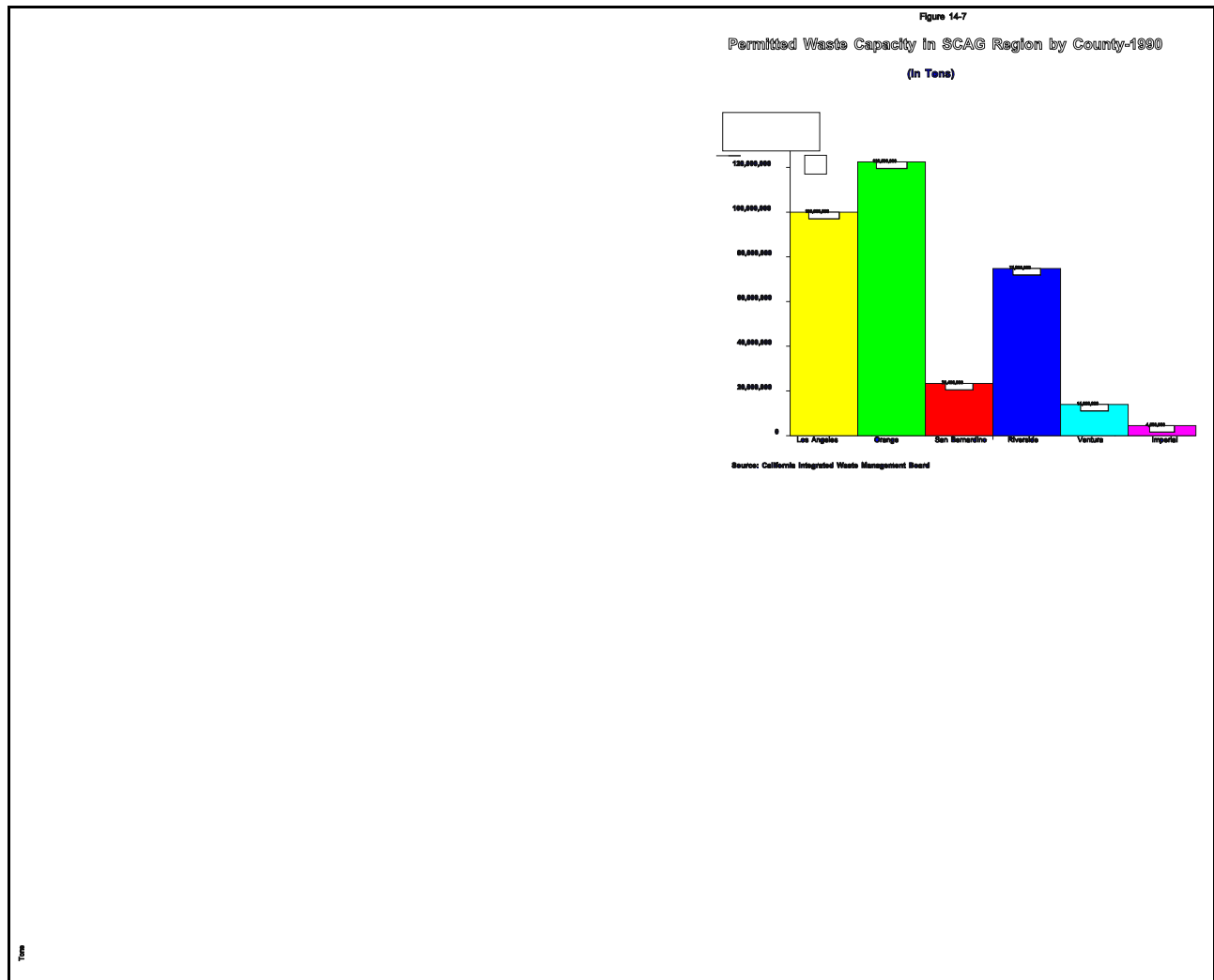
The Eagle Mountain Project is being developed by the Mine Reclamation Corporation. The proposal calls for a Class III landfill to be developed in an unused iron ore open pit mine at Eagle Mountain in northeastern Riverside County. At peak operations, the landfill would receive up to 20,000 tons per day (tpd): 18,000 tpd by rail and 2,000 tpd by truck.

In October of 1992, the Riverside County Board of Supervisors approved the environmental documentation for the project and granted a conditional use permit. Due to a law suit filed by a coalition of environmental groups, local citizens and others, the Environmental Impact Report was ruled inadequate. In addition, state and federal approval will be required before actual construction can begin.

b. Rail Cycle Project

The Rail Cycle project is a joint venture between Waste Management, Inc., a large waste services firm, and the Atchison, Topeka and Santa Fe Railway Company. The proposal calls for a landfill with 200,000,000 ton capacity over 100 years to be built in Amboy, California in Eastern San

⁹Southern California Association of Governments. *The Feasibility of Hauling Solid Waste by Railroad from the San Gabriel Valley to Remote Disposal Sites*. April 1988.



Bernardino County. Material recovery facilities would be built in the city of Commerce and in San Gabriel Valley.

A draft EIR was issued for the landfill project in November 1992. The City of Commerce has approved construction of a materials recovery and rail loading facility, however construction on the facility will not begin until the landfill is approved.

c. California InteRail Project

The California InteRail Project is one of two proposed projects in Imperial County. The project calls for a regional landfill to be built in Glamis, near Brawley in Central Imperial County. The landfill, which would be located on existing mining lands, would have maximum capacity to handle 20,000 tons daily. The project, which is a joint venture involving the Gold Fields Mining Co., Western Waste Industries, and SP Environmental Systems, Inc., plans to utilize both new and existing material transfer and loading facilities.

d. Other Projects

Additional proposed waste-by-rail projects include the Chambers Development Project, which includes a regional landfill located near Niland in Imperial County, the Campo Solid Waste Management Project, which includes a proposal for a landfill on the Campo Indian Reservation located within San Diego County, and the East Carbon Project, a fully permitted landfill near the town of East Carbon in Utah. The East Carbon site, which is approximately 800 miles from Los Angeles, has already accepted a trial waste shipment from the Los Angeles County Sanitation District.

These proposed projects raise several important regional questions:

- How many waste-by-rail facilities can the region support?
- What will the impact of waste-by-rail be on local efforts at waste prevention and recycling?
- How will waste-by-rail affect waste management costs in the region?
- What will the impact be on the regional transportation system?
- What are the air quality implications of waste-by-rail?
- How will waste-by-rail facilities interact with emerging waste management technologies (e.g., gasification)?
- What are the implications of interstate restrictions on waste imports and exports?

One of the recommendations in this chapter is to begin the regional dialogue necessary to answer these and other questions.

G. REGIONAL SOLID WASTE ISSUES

For the SCAG region to meet the ambitious goals for solid waste diversion required under California Integrated Waste Management Act and to provide safe, economical, and equitable disposal facilities, several policy issues may need to be addressed. This section raises several of the key issues in meeting the region's solid waste goals. From this section, it becomes clear that coordinated action among local, state, federal, and private sector participants will be necessary to meet the significant challenges posed by solid waste.

1. DEVELOPING RECYCLING INDUSTRIES AND SELF-SUSTAINING MARKETS FOR RECYCLED MATERIALS

Recycling is and will continue to be a key factor in diverting solid waste away from land disposal. The crucial issue the region must address before high rates of recycling can be achieved is whether it can foster viable, self-sustaining markets for a broad range of materials.

Creating recycling markets is a chicken and egg problem. A need exists to create an increased demand for products made from recycled materials to support the development of recycling industries. At the same time, fully capitalized recycling industries need to be developed to accept recycled materials as feedstocks and to produce recycled products. Both the supply and demand issues need to be addressed simultaneously. Governments at the local, state, and federal level can play a positive role in creating these markets. In fact, recycling-based manufacturing represents a new, environmentally responsible industry in which the Southern California region has the opportunity to be a nationwide leader.

A key element of any viable markets is, of course, having customers willing to purchase products or services at a price that will sustain the operation of a business. For recycled products, in many areas and for many types of materials, there is currently insufficient demand to sustain recycling businesses. This is changing, of course, as more consumers are actively seeking recycled products and are willing to pay slightly higher prices for such products, and as recycling technologies advance, thereby lowering the costs of production and product prices. Nonetheless, the lack of demand may threaten the creation of a robust recycling industry in Southern California.

Direct governmental action to create markets for specific products certainly is not without real problems. Governments are often not in the best positions to determine which products should be promoted or the most effective way of increasing consumer demand. Nonetheless, there are actions that can be undertaken by federal, state, regional, and local governments that will foster the markets necessary for the region to meet the diversion requirements under the law and can help promote industries that will provide for real economic development. Such actions include adopting procurement policies that favor recycled products and therefore increase demand; creating economic incentives for new recycling businesses; promoting the infrastructure necessary for a regional recycling industry; and developing a regional center for the promotion of recycled materials in the international market.

Recommended Strategies

- Collect and disseminate regional information on the location and capacity of recycling facilities and data on material diversion in various subregions to foster national and international market development.

- Encourage international, federal, state, and local procurement policies that favor recycled products. Information on such programs should be collected and distributed to local governments in the region. A regional center should be developed for the promotion of recycled materials in the international market.

2. ENCOURAGING A REDUCTION IN OVERLAP IN WASTE PREVENTION PUBLIC AWARENESS CAMPAIGNS

Through concerted public and private outreach efforts, considerable progress has been made in educating households and businesses about recycling. However, while recycling has been incorporated in the daily routine of many Southern Californians, waste prevention (often referred to as "source reduction") still lags behind. Thus, significant efforts will be necessary to educate the public about the necessity and the means of reducing the amount of waste they generate.

In many ways, waste prevention outreach, as opposed to recycling outreach, lends itself to broader—either state or regional—campaigns. To be most effective, recycling education must often be tied to the specific recycling programs in a local community. Waste prevention, on the other hand, embodies more universal concepts that are essentially the same from locality to locality.

The California Integrated Waste Management Act planning process fosters the development of numerous waste prevention campaigns in each locality, both by placing waste prevention on the top of the waste management hierarchy and by requiring localities to develop specific public outreach components in their plans. While these local efforts are important, considerable public resources may be saved by supplementing local efforts with state or statewide campaigns.

The state Legislature recognized the need for broader public outreach efforts in this area and in 1992 passed a law requiring the California Integrated Waste Management Board to develop a comprehensive outreach program.¹⁰ This public campaign and additional state and regional public information efforts will be critical in changing fundamental waste generation habits among Southern Californians. In addition, such campaigns will provide for the most effective use of public resources by reducing unnecessary duplication of efforts.

Recommended Strategies:

- Encourage the continued development of a statewide waste prevention public awareness campaign that reduces unnecessary overlap and expenditures at the local level.

3. ECONOMIC IMPACTS OF INCREASED WASTE MANAGEMENT COSTS

¹⁰The law (AB 2494, amending Section 42600 of the Public Resources Code) requires the Board to establish a statewide public information and education program that, at a minimum: encourages business and industry to reduce excess packaging; encourages consumers to reduce waste generation and increase recycling; encourage local government procurement of recycled products, encourage business, industrial, and residential consumers to purchase recycled products; provide information to cities, counties, and regional agencies on these outreach efforts and develop cooperative strategies to reduce costs, and develop and disseminate model outreach materials to local governments.

The decreasing amount of landfill capacity combined with additional waste recycling requirements is increasing, and will continue to increase, the solid waste disposal costs to businesses in Southern California. Increased operating costs, particularly if they differ from those costs in other regions in the United States or from other countries will give the region a competitive disadvantage in attracting and retaining businesses. Given the current state of the regional economy, any differential cost in doing business in the region should be examined closely.

The solid waste analysis prepared by the San Gabriel Valley Association of Cities as part of their subregional plan examined potential solid waste disposal cost increases in their subregion. Current Los Angeles County Sanitation District (LACSD) tipping fees (i.e., cost of disposal in a landfill) range from approximately \$16 to \$24 per ton. LACSD estimates that waste-by-rail tipping fees will likely range from \$50 to \$55 per ton. Additionally, tipping fees at current landfills may rise approximately 25 percent in an effort to "levelize" tipping fees with the waste-by-rail alternative. Thus, the potential cost impacts on the San Gabriel Valley will vary depending on the use of waste-by-rail. For local businesses, this increase will be felt most significantly by businesses in which waste prevention and recycling is most difficult.

In addition to the costs of tipping fees, the additional costs (both public and private) of the full range of integrated waste management activities need to be evaluated in the region. This includes the costs of various types of recycling programs, transportation systems, transfer facility operations, and land disposal costs. Such an analysis would provide a more accurate reflection of the true costs of waste management in the region, now and in the future.

Recommended Strategies

- Undertake regional study of current and potential future solid waste management costs in the region and options for reducing the impact of increased costs on area businesses.

4 PROMOTING NEW TECHNOLOGIES

The development of new waste technologies will be essential to the success of the region in meeting its waste management goals. Promoting these new technologies will offer dual benefits to the region. First, it will assist the region in meeting its goals for solid waste reduction and recycling. Second, these technologies may represent new industries, providing products and services that can be exported to other areas. Such technologies include new and more efficient product packaging, advanced materials recovery facilities and equipment, more efficient recycling technologies. In addition, new waste management technologies are developing that may offer environmentally safer disposal options. These include gasification technologies, regional composting facilities, and other techniques that can transform wastes into useful products, such as fuels or electricity, without the emission of significant air pollutants.

Recommended Strategies:

- Establish a regional solid waste technology task force should be established to evaluate opportunities for the application of new waste management technologies in the region.
- Sponsor a regional conference to bring together representatives from the financial community, environmental technology businesses, and the public sector to facilitate the financing of new environmental technologies and the development of an environmental technology industry in the region.
- Eliminate unnecessary duplication and/or restrictive regulations that hinder recycling, reuse, and composting of solid waste (i.e. the reuse of yard residues).
- Promote source reduction technologies that provide more efficient product packaging.

5. FACILITATING REGIONAL DIALOGUE ON INTERCOUNTY WASTE DISPOSAL PROJECTS

The major intercounty waste disposal projects being considered in the SCAG region are designed to provide waste disposal capacity for several of the SCAG region counties. The inter-county disposal of waste on this scale will be new to the Southern California region. Traditionally, planning for waste disposal facility capacity has been conducted on a county level. The waste-by-rail proposals, however, raise several regional questions. How many of the proposed facilities are needed to provide the region with adequate disposal capacity? What will be the impact of these facilities on the region's efforts to reduce and recycle wastes? What are the transportation and air quality implications of rail-haul?

Recommended Strategies

- Collect and disseminate consistent planning information on a regional scale on a regular basis to promote informed, regional decision-making during the consideration of regional landfills. Such information should include the following:
 - Information on regional landfill capacity and various factors that affect regional capacity, including Subtitle D landfill requirements, intercounty agreements, etc.
 - Information on the regional impact of rail-haul proposals on transportation systems and air quality.
 - Information on the relationship between regional landfill development and the development of recycling markets.

H. INTEGRATION OF SOLID WASTE WITH OTHER REGIONAL ISSUES

Because the generation of solid waste is tied to the full range of human activities (i.e., production, consumption, etc.) it intersects with several of the other issues facing this region and covered in SCAG's Regional

Comprehensive Plan and Guide. Briefly, these intersections include the following:

- Economic Development and Solid Waste. As discussed above, the potential closing of several landfills and the development of regional, waste-by-rail landfills could increase waste disposal costs, negatively impacting area businesses. A more thorough assessment of the current full cost of waste management systems in the region is needed before such a conclusion can be drawn. On the positive side, the diversion requirements under California Integrated Waste Management Act offer the opportunity for California and the SCAG region to become leaders in the manufacture of recycled products. Currently, financing and other impediments limit the ability of recycling industries to develop to their full extent. The development of recycling-based industries as part of the broader effort to develop regional environmental businesses is encouraged through the economic chapter of this document.
- Air Quality, Transportation, and Solid Waste. Waste-by-rail and other changes in the disposal infrastructure of the SCAG region, will modify waste disposal transportation patterns as well as change the amount of emissions from these transportation sources. Current policies aimed at electrifying rail transportation will play a large role in determining the ultimate impact of these changes.
- Housing and Solid Waste. Housing patterns and development will have an impact of the amount and type of wastes produced in the region in the future and, thus, affect efforts at waste prevention. Per capita waste generation is traditionally higher in single-family housing than multi-unit housing. In addition, a higher percentage of waste generation in single-family housing is yard wastes.
- Growth and Solid Waste. Growth has the most obvious impact on waste generation. As the region grows, waste generation can be expected to increase and increasing pressure will be put on existing landfill space.
- Energy and Solid Waste. Solid waste disposal systems and infrastructure rely on energy sources (electricity, natural gas, and petroleum) to function. The energy chapter of this document evaluates more fully the energy consumption from solid waste disposal and the impacts of such energy consumption.